REMARKS

Claims 1-2 and 4 are pending in this application with claim 1 being the sole independent claim.

Rejection under 35 U.S.C. § 103(a)

Claims 1-2 and 4 remain rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the combination of Hirsch et al and Krska et al. Applicants respectfully traverse this rejection for the reasons of record, and for the additional reasons set forth below.

The Presently-Claimed Invention

The presently-claimed invention relates, generally, to a method for identifying cellular protein antigens, to which a subject with cancer produces autoantibodies, but a subject without cancer does not, without prior knowledge of the proteins being identified. The method ***consists of*** the following steps: (a) extracting proteins from a sample of cells; (b) separating the extracted proteins by two-dimensional electrophoresis; (c) transferring the proteins separated by two-dimensional electrophoresis to a membrane; (d) incubating the membrane with serum from a subject known to have the cancer; (e) detecting the proteins to which autoantibodies in the subject's serum have bound; and (f) comparing the proteins to which antibodies in a control serum sample from a subject without cancer bind. Those proteins bound by antibodies in the serum from the subject with cancer but not the control serum from the subject without cancer are identified as cellular protein antigens to which a subject with cancer produces autoantibodies and a subject without cancer does not.

Hirsch et al. and Krska et al.

Hirsch et al. is cited for disclosing a method of identifying proteins that induce antibodies in Hodgkin's disease (i.e., lymphoma) by isolating proteins from cancer cells derived from Hodgkin's disease patients, subjecting the isolated proteins to 2D PAGE followed by Western blot analysis with sera from cancer patients as compared to normal control patients. The proteins bound by antibodies present in serum of cancer patients, but not in serum of normal patients, are

identified as proteins to which a subject with cancer produces antibodies and a subject without cancer does not.

Applicants submit that Hirsch et al. performs a method for screening antibodies in serum samples from patients afflicted with Hodgkin's disease in which the serum proteins are first subjected to 1D gel electrophoresis and western blotting to identify a particular polypeptide. The samples are then used in 2D immunoblotting to further characterize the previously-identified polypeptide. The prior knowledge derived from the 1D electrophoresis is necessary for Hirsch et al. to perform all subsequent steps of the method disclosed therein, in which 2D immunoblotting is used to further characterize the peptide.

One of ordinary skill in the art, having the disclosure of Hirsch et al., would conclude that 2D western blots may only be interpreted by having *a priori* knowledge of the protein of interest derived from first performing 1D electrophoresis.

The presently-claimed invention provides a means, previously not available, for performing 2D western blots to discover proteins to which patients with cancer raise autoantibodies, where individuals without cancer do not, without prior knowledge of the proteins to be so identified.

The outstanding rejections based on Hirsch et al. ignore the fact that Applicants' claims recite a method "consisting of" steps (a) through (f). It is well-settled that the transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. *See* MPEP 2111.03. Applicants submit that the method disclosed in Hirsch et al., in which an initial 1D electrophoresis must be performed to interpret the results of a subsequent 2D immunoblot, does not disclose or suggest the presently-claimed invention, in which a 2D immunoblot is used to discover proteins to which patients with cancer raise autoantibodies, where individuals without cancer do not, without prior knowledge of the proteins to be so identified. One skilled in the art would not be motivated to modify the techniques disclosed in Hirsch et al. by eliminating the 1D electrophoresis step to arrive at the presently-claimed invention, and there is no suggestion in the prior art that such a modification would produce a useful result.

These deficiencies of Hirsch et al. are not remedied by further combination with Krska et al., which is cited for allegedly disclosing a method of 2D PAGE followed by western blotting analysis.

The key difference between the presently-claimed invention and the cited references is that the combination of Krska et al. and Hirsch et al. requires *a priori* knowledge of the protein of interest before western blot patterns can be interpreted, whereas the presently claimed invention permits the discovery of proteins without prior knowledge of the proteins to be so identified. Krska et al. does not disclose a method ***consisting of*** Applicants' steps (a) through (f), and does not provide any suggestion or motivation to modify the disclosure of primary reference Hirsch et al. to eliminate the 1D electrophoresis step to arrive at Applicants' presently claimed invention.

Applicants submit that the Office Action is improperly interpreting the claims in order to maintain the rejections based on Hirsch et al. and Krska et al. Specifically, the Office Action apparently continues to read the claims as being directed to a method "comprising" Applicants' claimed steps (a) through (f), rather than the presently-claimed methods which ***consist of*** Applicants' claimed steps (a) through (f).

Accordingly, the combination of Hirsch et al. and Krska et al. fails to disclose or suggest the presently-claimed method, and nothing in their disclosures would lead one skilled in the art to modify them without the benefit of hindsight reconstruction based on Applicants' disclosure. Applicants therefore submit that claims 1-2 and 4 are not unpatentable over the combination of Hirsch et al. and Krska et al., and respectfully request withdrawal of this rejection.

CONCLUSION

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of claims 1-2 and 4, and the prompt issuance of a Notice of Allowance are respectfully requested.

Should the Examiner believe that anything further is necessary in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event that additional extensions of time are necessary to prevent abandonment of this application, such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and

any fees required therefore are hereby authorized to be charged to our Deposit Account No. 01-2300 referencing docket number **108140.00015**.

Dated: August 27, 2008

Respectfully submitted,

Marylee Jenkins
Registration No. 37,645
ARENT FOX LLP
1675 Broadway
New York, NY 10019
Tel. No. (212) 484-3945
Fax No. (212) 484-3990
Customer No. 38485